DECEMBER, 1961

THE AIR LINE PILOT

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Editor

CARL STOFFELS
Associate Editor

ELAINE WALSH
Advertising & Circulation

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WE BELIEVE

THE AIR LINE PILOT

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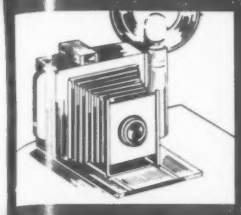
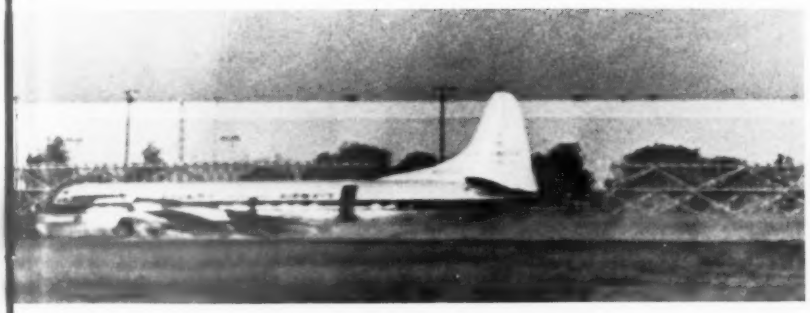
COVER: A dramatic shot of the new Convair CV-990 which is going into service on domestic and foreign air lines. American Airlines and Swissair, for example, both have planes on order. Convair engineers are making design modifications to increase the craft's speed including a new wing leading edge and fairing modifications. *Convair Photo*



The ALPA Camera

Some Highlights and Sidelights of the News and ALPA in Pictures

Boeing Vertol 107, the first of five ordered by New York Airways, lands at Manhattan Heliport. New craft is capable of landing on roof top heliports such as on the new PAA building under construction. U.P.I. Photo



A safe landing on a foam-covered runway was made by a Braniff Electra with 49 persons aboard at Carswell Air Force Base, Fort Worth, October 16. Landing gear trouble developed after takeoff from Dallas' Love Field. There were no injuries. Associated Press Wirephoto

Potez 840, powered by four 523 h.p. turboprop engines, is the latest French aircraft coming into the American market and is bidding for the local service carriers' business and the corporate market. It is being groomed as a replacement for the DC-3.

U.P.I. Photo

"Well, back to the old drawing board!" John Davies of Hastings, England, pedaled in vain to get his "helipede" off the ground. Davies and a partner are after a $14,000 prize offered by a Britisher for the first man-powered aircraft to fly a mile. According to their calculations, the "helipede" should fly.

Photo Yan, Toulouse

In a dramatic show of solidarity, 200 EAL, DAL and SOU pilots marched to the Atlanta Terminal to bring to the attention of passengers that the SOU strike is still in effect and the SOU pilots are actively receiving the full support of other ALPA pilot groups.

Dick Bigham Photograph

When buying Insurance... look for that which is beyond price or valuation.

Many years ago there came to Nebo, the Wise, a man who had little to show for the many dollars he had spent.

"Tell me, ol' Nebo," he asked, "how can I receive the most for the money I spend?"

Nebo replied, "That which is bought or sold has no worth unless it contains that something which is beyond price or valuation."

These age-old words of wisdom hold true even unto today. ALPA's Loss of License Disability Insurance has that something which is beyond price or valuation.

ALPA negotiates and endorses the plan. This is very important to each member as through ALPA only, with its tremendous bargaining power are you assured of the best coverage possible at the lowest cost.

ALPA's Loss of License Disability Insurance pays monthly benefits for temporary as well as permanent disability with the option of a lump sum settlement.

For your best insurance coverage select an ALPA endorsed plan. Then, contact your local ALPA Insurance Chairman or, for specific information, write your ALPA Insurance Department.

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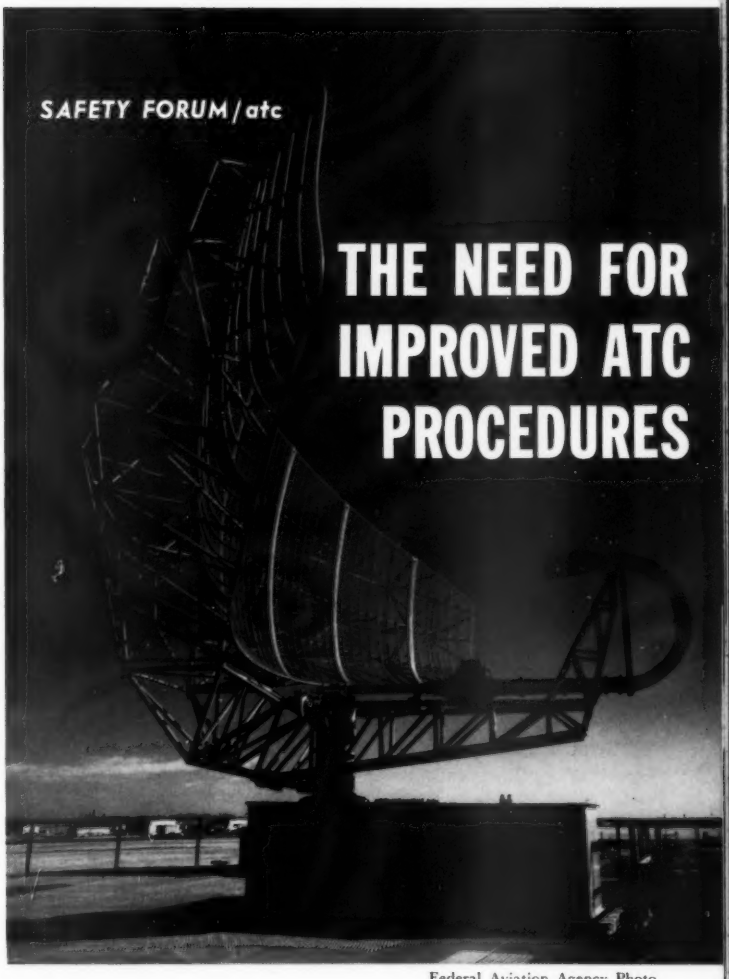
SAFETY FORUM/atc

THE NEED FOR IMPROVED ATC PROCEDURES



Federal Aviation Agency Photo

In trying to improve the ATC system, solutions are being sought in two areas—through controllers and pilots. From a pilot's viewpoint there are five areas which are part of the total ATC problem and solution.

ALPA Photograph

Captain E. J. Bechtold is with Eastern Air Lines. He is a member of the ALPA Air Traffic Control Committee.

WHETHER we improve the ATC procedures or revise them, as in the past, I would make the observation this time they be tailored more conservatively to provide a greater safety factor, rather than aimed at expediting the traffic flow. And just to give you something to chew on, I would like to pose this question for your consideration. How much can we improve the safety and efficiency of our traffic control system by "improving the traffic control procedures"? Frankly, I think we have been, and are doing, wishful thinking to believe the panacea can be found in this area alone.

No significant progress

Vast numbers of man hours and millions of dollars have been thrown into an R & D program in an effort to improve the ATC system in recent years but there has been no truly significant progress. Our ATC system is merely a beefed-up version of 1938. Consequently, we are still seeking our solutions in the same areas—namely, through controllers and pilots—and by constantly revising procedures; we just can't get there from here following such a course. With our present subsonic aircraft the system is woefully inadequate. Project yourself into the supersonic and you may expect choas.

During the past 20 years several groups have been commissioned to improve the air traffic control system. Some of the more prominent were Special Committee 31 of the Radio Technical Commission of Aeronautics, Special Working Group 13 of Air Coordinating Committee, the Harding Committee, the Curtis Committee, and more recently, Project Beacon. Even the Doolittle report had a direct bearing on the air traffic control system.

Careful analysis of the work which has been completed by these various groups leads one to the inevitable conclusion that weaknesses found were distinctly similar in each case.

In the early 1940's with the advent of approach control, terminal systems developed capability above that of the en route system. In the controller's jargon it became reasonably simple to "drain the stacks dry."

In the mid-1940's, direct pilot-to-controller communications were evaluated in the Washington area, wherein en route controllers for the first time had direct radio communication with the flights for which they had responsibility. This rapidly changed the previous complexion and the terminal system could no longer provide landing rates which could absorb the capability of the en route system. Many things were tried, including utilization of ap-

This article is based on a speech given by Captain Bechtold at the ALPA Air Safety Forum, October 18, 1961, Chicago, Illinois.

proach control fixes more than 30 miles distant. But it was not until the early 1950's, when surveillance radar was experimentally applied by Washington Approach Control—and a two-stack later becoming three-stack fix arrangement—developed, that the terminal system again outpaced the en route capability. In quick succession, long range radar was used by the Washington Center and for a period of time, the en route and terminal systems were equalized in capability and for the first time, a major terminal was operated at near the airport's maximum capability.

During the winter of 1952, it was not unusual for Washington Approach Control to handle more than 60 movements per hour from and to Washington National Airport, Bolling Field and Anacostia; and under ideal conditions where the north runways could be used, particularly with the weather low enough that the military had ceased flying in this area, the system had the capacity of upwards of 80 movements an hour. It is interesting to note that this is higher capacity than is claimed for the system today. The "common IFR room" concept, it appears, may top this figure. We won't know this until some practical operational problems are worked away from the simulated environment.

Discussion with other air line pilots reveals that holding delays en route, that is to say—more than 50 miles from the terminal area—have reduced to insignificance in proportion to delays incurred either holding in terminal airspace or awaiting departures clearances into terminal airspace. The obvious reasons are insufficient landing and takeoff aids such as parallel runways, high speed turn-offs, ALPA configuration approach and touchdown lighting, high capacity taxiway systems, multiple instrument landing systems and adequate gating facilities so that aircraft can be moved rapidly through a stop.

Cockpit workload

Another area of great concern to ALPA is the ever-increasing cockpit workload. There has not been a decrease in communications with ATC which can be related directly to the improved navigation aids and air route structure provided by the VOR facilities. For that matter, there has been little noticeable reduction in position reporting required by the ATC system in the low altitude structure. SELCALL and radio-teletype are both available to improve the situation, and since the pilot is required to monitor ATC frequencies at all times a simple "Don't call me, I'll call you" system could and should be evaluated.

We are concerned that the increased workload associated with the increase in speed of the modern aircraft is not truly appreciated outside the pilot ranks. We have little reason to believe that the speed range flexibility and performance capability of the modern turbo-prop and pure jets is understood by the ATC controllers.

In our evaluation of the present system, there are five broad areas which are the most troublesome from the pilot's viewpoint, indicating that improved or revised procedures is not the answer in itself. These are: 1, airport; 2, communications; 3, ground and airborne equipment; 4, control personnel, and finally 5, procedures.

1. The airport

The airport itself is probably the biggest bottleneck in the ATC system. Delays incurred in departures and arrivals probably constitute 90 per cent of all the delays as compared with those en route. Little things such as:

(1) inadequate ramp space;

(2) finger gates blocking unrestricted view of the ramp area frequently leading to two aircraft being unwittingly maneuvered to a nose to nose position;

(3) 90 degree turn-offs on taxiways;

(4) runways are not being served by taxiways, necessitating taxiing 1,000 feet, or more on the runway prior to reaching takeoff position;

(5) inadequate run-up areas which results in blocking aircraft movement of one around the other;

(6) single runway ILS approaches.

These are just a few of the things which tend to slow down the operation—more important, which leads to extra conversation and communications—and even more important still, in missed connections, etc.

2. Communications delays

Next to the airports, this is unquestionably the second biggest bottleneck. At most large airports, there is usually some delay experienced in getting taxi clearance. At some installations, it is true, the situation is somewhat improved where a separate frequency is utilized for en route clearances. We are constantly reminded not to taxi from the ramp without clearance. But more often than not, there is some delay, whether it be just a few seconds to a few minutes awaiting this clearance. *This* is where the ATC delay is first recognized operationally by the pilot.

"Stand-by." How many times have we beat this one to death? But it is still one of the most frequently heard and irritating of transmissions. But to stick to the point, it also results in a

John Holm, UAL, SFO

"I've been on vacation——"

'delay" factor. This is one problem area on which I feel sure we have unanimous agreement so let's move along to

3. Ground and airborne equipment

Moving aircraft can only be as expeditious as as the tools available allow; all other things being equal. Radar is a wonderful tool, but it has limitations of which we are hearing more and more these days: (a) lack of definition, (b) interference from precipitation, (c) scope cluttered, etc.

Reliability and maintenance of ground based equipment—we recently had an aircraft wind up in an overshoot making a GCA under marginal conditions when the ILS was out of service. Facilities are frequently malfunctioning or inoperative whether it be the G/S, localizer or both, a locator, marker beacon, and LF facility or just bends in the legs, etc.

Inadequate weather reporting aids, inadequate lighting—whether it be approach, runway, or taxiway—all figure in the ATC "delay factor."

The same goes for airborne equipment. Only the good Lord knows how many incidents and accidents have occurred because of faulty instrumentation, erratic and spurious signals, etc. The resultant delays due to missed approaches, extra conversation, diversions and the like point up the need for improvement in this area.

Now let's examine a few specific procedures that *could* be worked over.

Reduction in complexity of ATC clearances

One of the time-consuming portions of ATC's work is the delivery of the complicated clearances necessary in high density areas to provide for such things as communications failure. Judicious use of the civil SID (Standard Instrument Departures) properly conceived and implemented will, we believe, provide a measure of relief. But for the present, we must struggle along with lengthy clearances given for the most part like old Clem McCarthy used to announce the races.

Revisions to clearance after aircraft is in take-off position.

It is a frequent practice of controllers to issue information which effectively changes a clearance after an airplane is in take-off position and the crew is busily engaged in performing the required duties associated with take-off. This results in aborted take-off at times, misunderstanding of information and

International News Photo

IS TODAY'S ATC SYSTEM MERELY THE OLD VERSION "BEEFED-UP"?

many unnecessary "repeats." ATC personnel should revise clearance information after the aircraft has reached take-off position only if such revisions are required to assure that standard separation criteria will be afforded, and *not* simply to save a few seconds or a minute or so.

Requests to change radio frequencies too early after take-off

Pilots are still being requested to change frequency while the landing gear is still in retraction cycle. This is a busy time for the flight crew. Improvement here could be offered by (1) providing the pilot with the next frequency as he moves into take-off position, and (2) during training give ATC personnel a better understanding of the time elements involved in the performance of certain cockpit duties such as gear and flap retraction and engine power settings.

Reduction in after take-off routing changes.

In the widespread use of radar departures it has become more noticeable that changes in routings are given with increased frequency. Controllers should be instructed to minimize routing changes and to utilize this technique only to take advantage of such things as better performance of a succeeding aircraft.

The airspace saturation problem—terminal areas.

The traffic in areas like New York has become sufficiently heavy that rigid procedures were developed such as the so-called "tunnel operation" for westbound flights out of Idlewild. Oversimplified, this was the reservation of one or two altitudes in the general area of LaGuardia Airport and Newark Airport which were never used except by westbound traffic from Idlewild. This caused restriction in the flexibility in the traffic moving at both LaGuardia and Newark.

ALPA adopted policy endorsing the ATTAC plan in 1958. This plan, through the judicious location of navigational aids, allowed pilots and air traffic controllers to take advantage of the increased performance characteristics of the newer family of aircraft in lieu of following restrictive procedures such as the "tunneling" previously mentioned. As a matter of fact, in the new "Metroplex Plan" to be implemented—I believe around December 14th—it appears we may have eliminated the "tunneling" in the New York area.

Elimination of compulsory position reports.

It has been time-honored that workload in the ATC system be measured by the number of position reports received by the particular facility. In fact, for years this was the sole standard for staffing. It is indicated that approximately 50 per cent of the compulsory position reports are valuable in maintaining separation criteria. In view of the requirements that pilots monitor ATC frequencies at all times, it ap-

Continued on page 26

Fires caused by turbines, helicopters for rescue work

By CAPTAIN V. HEWES, DAL

ALPA Crash Rescue and Fire Committee

RUNWAY foaming is by no means the answer to pre-meditated emergency landings.*

It must be emphasized that only about 5 per cent of the crash fire ignition source is from friction or static sparks. By far the greatest hazard with our new jet transports is from the engine itself. The turbine engine, even when thrown free of the aircraft continues to turn for some time, depending on internal damage. There are four hot spots in the turbine engine: the aft end of the compressor, the combustion cans, the turbine and the tail pipe that retain enough heat for combustion purposes up to 45 minutes after shutdown. The continued rotation of the engine draws in fuel vapor from any spillage and instantly ignites it. Here is the cause of 95 per cent of our crash fires to date, involving turbine aircraft.

What can be done? We have the answer—an efficient inerting system. To date the industry has seen fit to leave it out of our jet transports due mainly to the weight and cost problem. The NACA, some four or five years ago, developed a water inerting system and carried out many tests with it. Several jet aircraft were destroyed with no ignition of combustible fuel vapors, proving without a doubt that this system is close to the answer.

What is the weight problem? It takes 10-12 gallons of water per engine to cool the hot spots below ignition temperature. With four engines that is 40 to 50 gallons. Water weighs 8.34 pounds per U. S. gallon. That means

Continued on page 27

*A comprehensive report on runway foaming by Captain V. Hewes and Captain William Collier appeared in the October, 1961 issue of this magazine.

The material in this article is based on a report given by Captain Hewes at the ALPA Air Safety Forum held in Chicago on October 17, 1961.

AIR FORCE BASE TRAINS FIR FI

1. ALERT. A Kaman H-34B turbojet stands ready for a fire-fighting mission at Stead Air Force Base, Nevada. A foam-filled "sputnik" is spotted in front of the Huskie on its own trailer.

3. AIRBORNE. Fifty-five seconds worth of foam, in the attached "sputnik" rides below the H-34B heading for the simulated crash and fire.

5. FIRE-FIGHTERS rush from the helicopter, grab a hose from the "sputnik," and advance toward the burning wreckage.

S FIR FIGHTING 'COPTER PILOTS

ALARM. A simulated crash off the end of the runway sends pilots and fire-ighters scrambling into the Huskie for a fire-suppression mission. The turbine ngine, requiring no warm-up, is ready to go.

HEADING for an upwind position from the fire, the Huskie gets ready for e job of rescuing the pilot in the burning aircraft.

ALUMINIZED - clad re-fighters work their ay toward the wreck hile the hovering Huskie ushes the smoke and ame away from them.

HOVERING protectively over the fire-fighters, this is a dramatic demonstration of how the down-wash of the rotors beats a clear path for rescue workers approaching a burning aircraft. Also, the trapped occupants of a plane get their life-giving oxygen from the down-wash.

U.S. Air Force Photos, Stead A.F.B.

"LT. HOTROCK" is assisted into the cockpit of the "XF-6-7/8" by two air force instructor fire-fighters. When the heat is turned on, "Hotrock" awaits rescue by the Helicopter team.

ATA'S Views On ATC Requirements

By W. B. Becker, Director, Operations, Air Transport Association

IT is indeed a pleasure and a privilege to participate in the ALPA Safety Forum again and in a panel discussion of this subject, so vital to the success of our business. We must by coordinated effort, such as this, between the users of the airspace and the providers of Air Traffic Control Service, consider and recommend methods and procedures which will increase the safety and efficiency of the ATC System.

I would caution you, however, and it is my personal view, that too many words and ideas have been offered on this subject without proportional and real substantial gains being made to increase safety and to reduce air traffic control delays. This is not to say that forums, such as this, do not serve a useful purpose—on the contrary, they are probably one of the most useful tools available to both the users of the air traffic service and its providers. What concerns the airlines and concerns all of us assembled here is that, in spite of the expenditure of large sums of money during the past three years on people, development of hardware, and ideas, we, at the user level, still have yet to see substantial progress. I believe the basic requirements are obvious to all and are reflected precisely in the theme of this Safety Forum. It is also the airlines' view that safety and efficiency of air traffic control must be increased *now*.

The Air Transport Association and its member airlines are now attempting in every way available to the ATA to meet the FAA specified basic ATC requirements in order to achieve maximum operational safety and efficiency. We are ever ready and willing to work with other users and concerned government agencies in the achievement of these requirements. Our needs may differ from those of other users in some cases, but, at most, these differences are relatively minor in terms of the end product and should not be permitted to delay our progress toward achieving the desired results.

It is appropriate and absolutely necessary that the airlines continue to make their requirements on the ATC system known to concerned government agencies and other airspace users so that we can collectively direct our efforts and resources toward common goals with a minimum waste of time and substance.

We, in the airlines, believe that the following actions should and can be taken to increase efficiency and safety in the air traffic control system:

1. Positive control

We endorse and urge the early and continuing expansion of positive control. So that there will be no doubt in anyone's mind as to what we mean by *positive control,* we define it as "that air traffic control service which affects separation in accordance with accepted separation standards between *all* aircraft in a designated area regardless of the weather and without recourse to visual separation procedures." We

This article is based on Mr. Becker's address to the ALPA Air Safety Forum held in Chicago on October 18, 1961.

Sylvania Electric Photo

acknowledge that many things are required to permit the desired expansion of positive control, and that such expansion can be accomplished only as the ATC system capability permits; however, it is readily apparent that positive control can do much to increase the operational safety of all airspace users and, therefore, must be given high priority in the implementation process.

2. Problem of regulations

The continuing pile-up of air traffic control policies; complex procedures, charts and rules; interpretation of rules; recommended practices; special regulations; regulations of the administrator, etc., must be stopped. Both the providers and users of the air traffic control service are being literally buried under a "paper mill." We all know that regulations are required and that procedures must be followed to permit an organized flow of air traffic in the ATC system, but these rules and procedures must be short, concise, and readily understood by all concerned parties—the controller on the ground and the pilot in the air.

It has become increasingly apparent to the airlines that *all of the rules and procedures*—I repeat—*all of the rules and procedures* which have a direct bearing on the services provided to the users in the ATC system must be a matter of public record. This is a necessity from the standpoint of the user if he is expected to participate and cooperate fully in the use of the various services provided in the ATC environment. We urge other users and the FAA to join with us in exerting every effort to establish in public records complete, clear and concise procedures and regulations governing the services provided in the system.

We further encourage the FAA to continue to provide adequate forums for exchange of ideas between the users and the FAA on any *proposed* system, policy, procedures or rule action by FAA which will directly affect the users of the ATC services.

3. Improved ATC tools

Improvement of the air traffic controllers' tools must be accomplished. Today's controller, aside from radar and minimum computer applications, has very little more to help him do his job than he had ten years ago, although his workload has increased by leaps and bounds. The ATC system continues to be built on having an increased number of controllers each handling smaller units of airspace. The approach to the problem increases coordination out of all proportion to the actual traffic and introduces increasing inefficiencies into the ATC system.

What I have said with regard to the controllers' traffic control tools is not new; it has been said by many who are more qualified than I am to speak on the subject. However, the fact remains that Congress has budgeted large sums of money for the express purpose of improving our air traffic control system and, although a large part of these funds have been directed toward the development of improved control tools, we have yet to see, with a few minor exceptions, a marked improvement over the tools used by the controller ten years ago. More important to the user, we are still penalized by ATC delays directly attributable to the lack of improved air traffic tools.

Dedicated people, in and out of government, have devoted and continue to devote much time and effort to the task of providing better air traffic control tools; but, in spite of their intense desire to get the job done, *it has not been accomplished.* All too often we "set a course" toward an improved system only to have its achievement delayed by a subsequent idea for improving the improvement; the result delay in getting any improvement.

In our opinion, we need a clear and concise program, aimed at providing improved air traffic control tools, which cannot be discarded or shelved without a clear and studied reason for doing so. Personnel with specific technical knowledge and capabilities in air traffic control techniques must be given more responsibility to organize and carry out programs associated with the development of these tools to meet the requirements expressed by users of the system. These same personnel should be given the backing necessary to insure that the agreed-to programs, at least basically, will be carried through to completion without undue delay and waste. We accuse no one; we only urge that we learn from past experience that there is an urgent need to process along the lines we have suggested above if air traffic control requirements are to be met.

4. Controlled spaces

Today, while we talk about the need for expanding positive control, there is still an unbelievable amount of airspace in the United States which is not controlled in any fashion and in which IFR flight under IFR conditions must be conducted. A considerable amount of this flying is involved in interstate commerce and is necessary in the public interest. The public must have, at a minimum, the assurance that air traffic control service will be provided for flights in interstate commerce.

We submit that the federal government must recognize this vital deficiency in the present ATC system, and take early action to establish navigation aids and related facilities which will permit the designation of controlled airspace and establishment of related ATC services in those airspace areas which must be used for IFR flight.

5. Radar development

The airlines recognize that radar is today one of the controllers' most valuable air traffic control tools. Without radar, the controller's ability to move large volumes of traffic in high activity areas would be reduced to an unacceptable level. Any pilot or controller who has experienced a "Black Friday" due to the failure of radar equipment will readily testify on this point.

We do not believe that full use is being made of available radar. Techniques are known and available today which can expand considerably the utilization of radar. For example:

(a) Many air traffic control facilities are using out-moded radar gear—more or less modified "hand-me-downs" from earlier military applications. The controller needs and the users and the public have every right to expect that the air traffic controller be furnished with the best radar possible. This radar should be specifically designed for the job of air traffic control. We recognize that FAA is moving forward in this direction, but we urge that the program be pushed.

(b) All radar-equipped air traffic control facilities should be provided with adequate radar beacon decoders with independent controls at each radar display. The procurement and installation of multichannel decoders must be expedited.

(c) The ability of the radar controller to more accurately pin-point the aircraft position based on a radar beacon target must be accomplished. Current FAA programs to provide electronic center makers on beacon targets and improvement of radar antenna characteristics to provide a smaller and sharper beacon return must move forward fast.

(d) It is evident to all of us that one of the major problems in the use of radar in air traffic control is the inability of the radar controller to readily determine the *altitude* of aircraft under his control. Today, "three-D" radar is not available for air traffic control. So far, engineering tests indicate that non-cooperative ground derived radar height information cannot be obtained with accuracies that meet air traffic control requirements. Today's controller can only obtain altitude information from aircraft under his control, or from flight progress strips for such aircraft. More times than not, however, he is completely in the dark as to the altitude of the random targets on his scope.

Maximum use must be made *now* of existing beacon coding techniques in order to provide altitude information to the controller. Secondly, the FAA should expedite the development of the Mode "C" radar beacon system in order to provide automatic altitude indications on the controller's radar scope.

(e) As previously mentioned, coordination between controllers and between controlling facilities is a major air traffic control problem. A refinement in the use of radar, which will enable one radar controller to "hand-off" a radar target to another radar controller with minimum coordination, must be developed and installed in all radar air traffic control facilities.

6. Airport development

The airport remains as one of the major bottlenecks to the expeditious flow of air traffic. Changes and improvements to airports are often difficult due to the political and economic problem associated therewith, and the lack of sufficient federal jurisdiction and direction on these matters. Some of the major airport improvements and developments which should be expedited are:

(a) Expanded installation of lighting aids such as visual glide slope indicators, Configuration "A" high intensity approach light systems and runway end identifier lights.

(b) Development of adequate national standards in conjunction with all aviation interests in order to provide standard runway lighting at airports. Additional standards are also needed to provide guidance with regard to such items as taxiway configurations and parallel runway spacing.

(c) The Federal Government's policies with regard to provision of airport aid must be clarified and modified so as to ensure, at a minimum ATC service at all airports used in public transportation.

(d) The primary federal assistance to airports should be aimed at those improvements which will afford greater safety and expedite air traffic around and on the airport.

7. Use of airspace

Since airspace is at a premium in today's air traffic control environment, we must make maximum use of available airspace. The FAA has since 1958 taken action to reduce special-use airspace which has given other users some relief, however, we believe that a greater effort must be extended by all concerned to permit maximum joint-use of these otherwise unavailable areas wherever possible.

8. Single approach control

As noted previously, the controller's coordination problems must be reduced. We believe that this can be accomplished in certain high-density terminal areas served by more than one airport by establishing a single consolidated approach control facility, having jurisdiction over the entire terminal area complex. Recent stimulation of this idea at NAFEC has clearly demonstrated the feasibility for the Chicago terminal area and it should be implemented as soon as possible. FAA should proceed to evaluate the application of this type of facility at additional multiple

Continued on page 30

ALPA Photograph

Mr. W. B. Becker (standing) of the Air Transport Association discussed his views on ATC at the ALPA Air Safety Forum. To his right is Ted MacEachen, the ALPA Panel Chairman on air traffic control. At the left is Mr. W. Littlewood, vice-president, Equipment Research, AAL.

EAL AWARDS TO 4 PILOTS FOR OUTSTANDING ACTS

Eastern Air Lines photo

Yandell *Knudsen* *Buchanan* *MacIntyre*

Captain Mudd

Capt. Garrigan *M. A. MacIntyre*

Four pilots were among the twenty-one Eastern Air Lines employees honored by the company for acts "above and beyond the call of duty." EAL president, M. A. MacIntyre, made the presentation. (In the first photo Philip A. Knudsen is a flight engineer.)

Twenty-one Eastern Air Lines employees were honored by the company on October 27 for various acts "above and beyond the call of duty."

Winners of the airline's "Presidential Citations," representing various departments and many locations on its system, were nominated by passengers or fellow employees. Included in this season's list are a skycap from Idlewild Airport; an air freight agent at Newark Airport; and two flight captains living on Long Island.

Recipients of the awards and their wives were feted at a reception and dinner tendered by Malcolm A. MacIntyre, Eastern's president, at the Rockefeller Center Luncheon Club atop the RCA Building, followed by a Broadway theatre party.

Among those honored were the members of the flight crew of the Super Electra which was hi-jacked to Havana early in the summer, who remained calm in the face of danger and later volunteered to return to Cuba and bring the ship back to Miami; two men at Eastern's Miami Maintenance Base who organized a "Freedom Forum" to promote Americanism and combat the menace of Communism; a chief reservations agent in Houston, who spent two days without sleep during hurricane Carla handling personnel and reservations problems and keeping up employee and customer morale; and several men who participated in the saving of lives and aircraft threatened by serious fires at airports in Miami, Hartford/Springfield, Philadelphia and New York.

The pilots who received citations were:

▶ Captain William E. Buchanan, of 13500 S.W. 63rd Ave., Miami, has been cited for "Under unusual and trying circumstances—at the point of a hi-jacker's pistol—he, with his crew, kept his head and delivered the plane safely to Havana, immobilizing and ultimately returning the aircraft to Miami."

▶ John Yandell, of 5431 W. 10th Court, Hialeah, Copilot, was cited for "Under unusual and trying circumstances—at the point of a hi-jacker's pistol—he, as a member of the crew, kept his head and delivered the plane safely to Havana, immobilizing and ultimately returning the aircraft to Miami."

▶ Captain David Mudd, of Pine Neck Road, Southold, L. I., who was severely burned himself while saving the life of his copilot in a fire which destroyed his all cargo "Flying Freighter" plane at Idlewild.

▶ Captain James Garrigan, of South Road, Oyster Bay Cove, L. I., organizer and commander of the Oyster Bay Flotilla 12-9 of the U. S. Coast Guard Auxiliary, who spotted from the air at night a small boat in distress off Jones Inlet, signalled the Coast Guard, and circled over the vessel with his landing lights until rescue was effected.

John Holm, UAL, SFO

Hobby: Golf
Occupation: Meteorologist

Registration desk: Ray Gerber (left) signs in. Barbara Wiley handles the registration and is speaking to Ken Burroughs, (right) ALPA Eng. Dept. and a panel member. D. Payton has his back to the camera.

For three days the problems of safety in the air were discussed by the safety representatives of ALPA, and experts on safety from the government, the air lines, and the aviation industry at this annual meeting.

ALPA AIR SAFETY FORUM MEETS IN CHICAGO

ALPA president C. N. Sayen presents the ALPA Safety Award to Captain V. Hewes, DAL, (left) and Captain W. L. Collier, PAA, for their outstanding contribution to the advancement of fire-fighting and rescue equipment at airports used for scheduled air carrier operations and other activities for increasing air safety. Presentation was made at the Air Safety Forum banquet.

WHAT can be done to make air travel safer? For three days approximately 150 pilots, and air safety experts discussed the problem in a series of meetings at Chicago's Del Prado Hotel, October 17 to 19. The forum afforded an opportunity to analyze ALPA air safety projects and to enable ALPA safety representatives to exchange views with top industry and government officials.

With Vernon H. Brown, AAL, ALPA's Region IV Safety Chairman as the master of ceremonies for the sessions, the sessions were organized along these lines: discussions of ALPA safety projects, various aspects of air traffic control, all-weather flying, helicopter operations, and industry presentations.

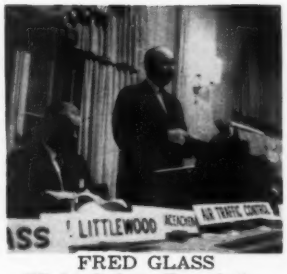
Continued on page 18

An exchange of ideas on air safety

ALPA Photograph

Some of the notable speakers

NAJEEB HALABY
FAA Administrator



FRED GLASS
Flight Safety Foundation

JOSEPH BLATT
FAA, Research & Develop.

E. H. COCKERHAM
Air Traffic Control Assn.

E. R. WATSON
Pilot Training Plans, ALPA

W. LITTLEWOOD
Vice-President, AAL

J. LEDERER
Flight Safety Foundation

J. FERRARESE
FAA, Flight Standards

Airport Fire & Rescue Problems

D. A. Heine *V. Hewes* *W. L. Collier* *Carl Eck*

All weather flying panel

R. Stone *E. Bechtold* *D. Little* *T. Linnert*

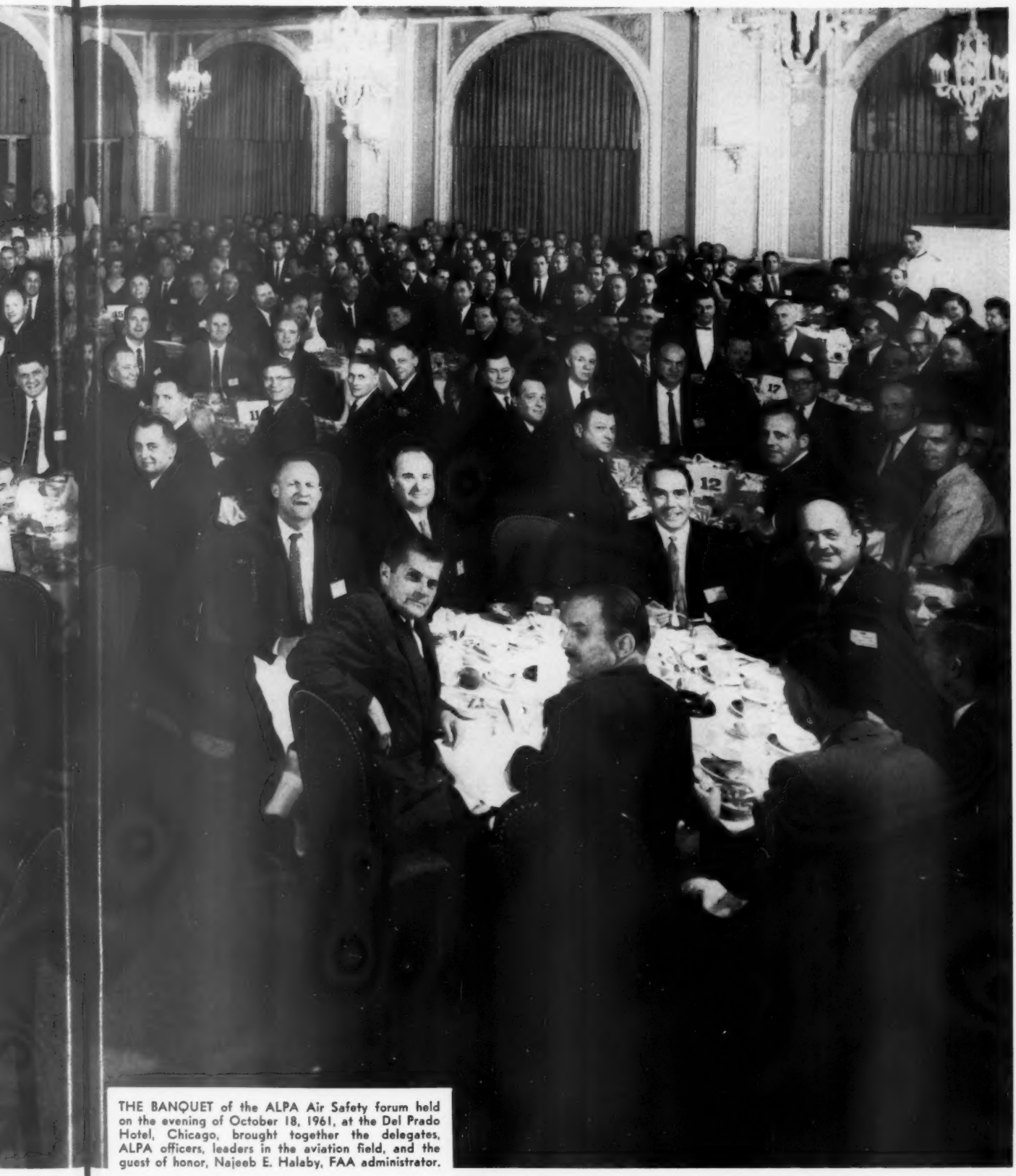
Comments on ATC panel presentations

S. P. Saint *W. K. Lawton* *M. Gough* *J. Lederer*

All weather flying panel

R. Stone *E. Bechtold* *D. Little* *R. Gerber*

5
4



THE BANQUET of the ALPA Air Safety forum held on the evening of October 18, 1961, at the Del Prado Hotel, Chicago, brought together the delegates, ALPA officers, leaders in the aviation field, and the guest of honor, Najeeb E. Halaby, FAA administrator.

A high spot of the event was the acceptance by President Sayen of the 1961 Aviation Week Magazine Annual Air Safety Award presented by Jerome Lederer, managing director of the Flight Safety Foundation. The citation read:

"For the professional and safety activities of the Air Line Pilots Association which among other accomplishments have included constructive annual air safety forums; contributions to improved cockpits, more realistic approach and landing aids, and improved collision prevention techniques; focusing attention on special current needs to improve safety such as additional landing aids, crash rescue facilities a airports, means for handling pilot in capacitation in flight; scholarships ir aero-medical programs and other edu cational activities."

Recipients of the Aviation Weel Magazine Award are selected by the Flight Safety Foundation after consultation with air safety specialists throughout the nation and the Foundation's Industry Advisory Committee.

Air traffic control panel

H. R. Miller *T. MacEachen* *H. Higgins*
E. Bechtold *W. Howell* *T. Basnight*

Maps, charts & approach plates

A. Schmitz *Jack Davis* *W. Rosenkrans*
H. Clark *J. Dunich* *C. E. Wafel*

Comments on ATC panel presentations

T. Linnert *Vernon H. Brown* *Don McBain*

Comments on ATC panel presentations

J. D. Smith *Jack Cram* *M. Hartranft* *E. Cockerham*

Ted Linnert *Vernon H. Brown* *T. A. Basnight*

A few of the ALPA home office staff members who helped administer the forum. Tape recording the proceedings were Ker Burroughs, engineering dept. (left) James Murphy, legal. Secretaries from the engineering dept. were on hand: Barbara Wiley (left) and Cecelia Martensen.

SAFETY FORUM / atc

THE STATUS OF TRAFFIC CONTROL DEVELOPMENT

By LEE E. WARREN, Deputy Director of Air Traffic Management, FAA

THE primary function of this Forum and that of the Federal Aviation Agency is exactly the same—air safety. In this connection, my purpose is to outline a few of our major programs that are designed to promote air safety through better air traffic control, and to give you some insight into what we are planning for the future.

First, to provide a sort of framework for my remarks, I would like to point out that we regard the support of the air line pilot, in the matter of implementing new programs and in the successful operation of existing programs, as a definite essential requirement. If the ATC services we provide have any importance at all to the user, I want to assure that the user's cooperation, sympathetic understanding—and valid criticism—regarding these services, hold just as much importance to us.

Positive Control Program

I want to discuss first what is probably our most significant program existing today—I am referring to positive control. As some of you may know, our first venture into positive control, which may be more properly termed positive separation of all aircraft in a given volume of airspace, came with the establishment of positive control airways in June, 1958. Although these airways were limited in number and positive control was provided only within the altitude block of 17,000 through 22,000.

The success of this program led to a limited degree of expansion; the provision of positive control on an area basis. Known as "Project Pathfinder," the area positive control program was established within the Chicago and Indianapolis ARTC centers. The project has proved beyond a doubt, the feasibility of providing positive control on an area basis at the higher altitudes. An essential supporting requirement, of course, was the proper ground and airborne environment. Project Pathfinder, which began on October 13, 1960, provided positive control at flight levels 240 through 250, inclusive. The program became an established operation, and this relatively small area was expanded vertically to flight level 600 on August 24, 1961.

Another aspect of the positive control program is a project termed "Topside."

The objective here is to establish positive control service throughout the conterminous United States at the above flight level 410. Due to the relatively light volume of traffic, and the critical problem created by the supersonic needs of aircraft operating at these levels, we believe that positive control can, and must be implemented in this strata immediately, and not be delayed pending the acquisition of a complete ground radar environment. Accordingly, we are proceeding with plans to implement positive control on a nationwide basis and above flight level 410. Our target date for completing this project is March, 1962.

The next logical step in the basic positive control program is lateral expansion to include additional areas at and above flight level 240.

The first step, which we hope to accomplish by March, 1962, will take in the Detroit-Cleveland complex. We are also taking a good look at the Oakland-Sacramento area in this initial expansion to provide a nucleus for further expansion on the west coast. Thereafter, we will pursue a continuing expansion program until all of the airspace above the conterminous United States is covered at flight level 240 and above. We hope to complete this portion of the positive control program in the next two to three years. The aviation community will be kept fully advised of our progress in this connection.

Amending SR-424C

A related development which we hope will become effective soon is our proposed amendments to SR-424C, the positive control rule itself, and SR-444, the jet advisory area rule. These amendments will establish a requirement for the use of coded radar beacon transponder during flight within positive control areas. In other words, these amendments will require a beacon having mode 3/A with 64 code capability. The net result will be to give us bet-

Mr. L. E. Warren, Deputy Director, Air Traffic Service, FAA, discussed this subject at the ALPA Air Safety Forum, October 18, 1961, in Chicago.

ter radar utility by reducing clutter on the scope from the basic mark X military and other early type transponders. The amendments were issued as a proposal in Draft Release 61-10.

In addition to the lateral expansion of positive control at flight level 240 and above, we are also planning to lower the floor of the positive control area to 14,500 feet in most areas of the United States. The timing of this is subject to the existence of the proper ground and airborne environment. Also, the conditions of operation in the lower strata will be subject to an intensive review of user operational requirements and our capability to satisfy these requirements without imposing undue penalties on any operation.

While on this subject, the idea of positive control in terminal areas is very appealing. However, it is obvious that the same rules that apply to positive control in the en route area may not be applicable to the terminal operation. Here we have an entirely different environment, in that there is a heterogeneous mixture of aircraft with widely divergent pilot qualifications and equipment capabilities. Any program planned for the terminal area must take these factors into consideration.

Although positive separation for all aircraft in a given terminal area has not been attempted to date at Indianapolis, Washington, Idlewild, and Atlanta, service has been expanded so that by use of radar a more accurate traffic advisory service is provided and, in addition, VFR flights are provided radar guidance and sequenced with inbound IFR flights to provide a steady flow of landings on the active runway. This service is provided on a voluntary pilot participation basis and, therefore, does not encompass all flight activities in the terminal area. We propose to select in coordination with user agencies, and have in operation at the earliest possible time, an improved terminal radar control service at a representative terminal area. Initially, this program will be an expansion of the radar service I have just mentioned.

It would, however, be much more comprehensive since the area would be designated through airspace action, and provision would be made for access to, or transit of the area, by VFR pilots who do not desire to enter the system or who are unable to enter the system because of a lack of proper equipment. From this foundation, we will continue to expand and improve the service on a step-by-step basis, with each step thoroughly evaluated before proceeding to the next, until we have attained the maximum practical capability for providing the highest degree of separation to the greatest possible number of aircraft.

One thing became vividly clear during the course of the Pathfinder evaluation, the requirement for radar beacon transponders in high altitude positive control operations. A great measure of the success of Pathfinder can be attributed to the increased surveillance, identification, and display filtering capabilities that are inherent in the radar beacon system. Although we had recognized this requirement for years, the experience in Pathfinder added increased emphasis to this program. The proposed amendment to SR-424C and SR-444 which I mentioned earlier will augment it.

In anticipation of a possible future need for coded beacon in general aviation aircraft, we are now sponsoring through contract, the development of a light-weight low-cost transponder. We have been told that such equipment can be made available at a cost in the neighborhood of 500 dollars.

Radar handoff

Another item which we are stressing in our air traffic control programs is the radar handoff. With our rapidly expanding radar surveillance capability, we are approaching a capability where a major portion, and in some cases all, of a particular flight is continuously within the coverage of our radars. As our radar coverage is extended, more and more flights are under constant surveillance and, wherever possible, we are establishing procedures for a direct radar handoff from one controller to the next as the flight progresses.

At the present time, radar handoffs are being accomplished on a full time basis from eleven centers to fifteen radar approach control facilities. On a part time basis, handoffs are made from fourteen other centers to thirty-four additional radar approach control facilities. The limiting factor is the availability of trained personnel and necessary equipment. The Jacksonville Center is just now having its radar equipment commissioned which would be the 26th center in the contiguous 48 states. Within a short period this center also should be using radar handoffs with associated radar approach control facilities. We plan to expand this capability as rapidly as funds, equipment, and trained personnel become available. Where we have this radar handoff capability, continuous radar service is provided and identity is maintained without the necessity for a re-identification procedure by each controller.

Today, the radar handoff is accomplished manually by one controller passing identification information to another, by indicating the position of an aircraft with reference to a geographic position known to the both controllers.

While effective, this method of transferring identity is cumbersome and time-consuming. We are, therefore, attempting to acquire a means of transferring

ALPA Photograph

Mr. Lee E. Warren (standing) Deputy Director, Bureau of Air Traffic Management, FAA, was the prinicipal speaker at the ALPA Air Safety Forum, on the panel concerned with air traffic control. Members of this panel: (left to right) W. Littlewood, vice-president, equipment research, AAL; Ted MacEachen, ALPA panel chairman; L. E. Warren, and W. B. Becker, director, operations, Air Transport Association.

identity electronically. Equipments to perform this function are presently under evaluation, and should be available for use in the near future. Another promising method of accomplishing radar handoff is through the use of a discrete code of the radar beacon system; however, this method is dependent on how rapidly we acquire both the ground and airborne capability.

Holding patterns procedures

Now, a word about the new standardized procedures for holding patterns. First, as a result of pilot comments we have been able to condense and simplify the presentation of the procedures as they are now shown in the *Airman's Guide*. The net result has has been reduction of printed material by one-half and greater clarity of presentation. These changes were published in the *Airman's Guide* on October 24, 1961.

Second, on September 5, we began an evaluation program intended to determine the effectiveness of pilot indoctrination in use of the new procedures. We are using a camera mounted on a radar scope in the Washington Center and a highly accurate tracking radar to record each individual track. Some 20 jet pilots were divided into three groups. Each pilot was to fly a minimum of five random entries as selected by the controller at the maximum allowable indicated airspeed, 230 knots. The first group was given the *Airman's Guide* to study and then fly the entries, one at the end of each mission. The second group was given the new condensed version of the procedures to study and then fly. The third group was given a short briefing, the condensed version to study, and asked to practice these in a simulator prior to flight.

This flight program has been completed and on the basis of a quick analysis, we are convinced the concepts, techniques, and procedures are sound and adequate.

A similar low altitude evaluation involving a larger number of pilots is about 90 per cent complete. I am happy to say that we have had air carrier and general aviation participation as well as military. No analysis of the low altitude data is available to date; however, it appears that the results will approximate those of a high altitude evaluation. Unless unforeseen problems arise, it appears that the scheduled implementation date of January 1, 1962, is still valid.

Last—the matter of complexity. The in-flight evaluation program supports our opinion that the connotation of complexity results only from the fact that the entry procedures are different from those we may have used in the past. I would like to emphasize that *only* when approaching the holding fix from a high angle to the holding course used need the pilot even consider the 70 degree line; and then, he need only subtract, or add, 70 degrees, as appropriate, to determine his direction of turn.

I am confident that objective participation will convince pilots of the logic of the principle used, and that they will be pleased that the procedures provide for establishment on the holding course with the least number of turns in the shortest period of time.

Pilot-to-forecaster

A number of additional elements of our overall program will be of interest to you.

First, the FAA, in cooperation with the U. S. Weather Bureau, began a year-long pilot-to-forecaster test on July 7, 1961. The test is designed primarily to allow a forecaster to directly answer questions from airborne pilots regarding in-flight weather to interpret and explain weather information concerning unusual and hazardous conditions, and to make available to controllers weather information which will aid in making immediate and accurate operational decisions. From this test, we hope to be able to determine the best method for providing this service nation-wide. At the present time, service is available 24 hours a day to any requesting pilot in the Washington Air Route Traffic Control Center area and within a 50-mile radius of Kansas City, Missouri. The radio frequency 122.6 MC. has been assigned to the pilot-to-forecaster service test. During the first month of the test, there were 650 user contacts, 805 in August, and in September there were 716. Approximately 40 per cent of the contacts were with air carrier aircraft. Generally speaking, we have found an enthusiastic acceptance of this service.

DME Standards

Second, as you know, DME air traffic control separation standards and procedures were published in January, 1960. These procedures provide the controller with an added and more efficient means of separating traffic thus resulting in a more efficient use of the airspace. In this respect, I am sure many of you, for example, have compared the standard ten-minute time separation minimum with the 20-mile DME standard and determined that a saving of from 10 to 60 or more miles of en route airspace results.

Also, you may have recognized the appearance of several new instrument approach and standard instrument departure (SID) procedures which either require or permit use of DME.

From the standpoint of airborne equipment, most first-line military tactical aircraft are TACAN equipped and these have DME capability. Our experience with the military aircraft and with American Airlines DME equipped aircraft has been most gratifying. Incidentally, we were advised on October 12, that all TWA jet aircraft are now equipped with DME and they wish us to insure full exploitation of its capabilities. As more aircraft become equipped, we are confident that the advantages of this capability will become more and more apparent.

Flight information program

Third, I would like to mention our flight information program. FAA has recognized the need for better assembly and dissemination of aeronautical data. Within the air traffic service a flight information division has been established to accomplish this program. The two primary objectives are:

1. To bring operational requirements together and develop suitable air cartographic materials and flight information publications to meet the requirements of the users, both civil and military; and
2. To provide a central flight information service for the collection, evaluation and dissemination of aeronautical data in support of the activities of the government, industry, and the aviation community.

This program already accomplished the development of IFR charts to meet both civil and military requirements for en route low altitude, intermediate altitude, and arrival and departure charts. Agreement has been reached between military and civil requirements for the high altitude en route chart and a prototype will be available for test and evaluation within the next 60 days. The requirements for supplementary flight information publications and VFR charts will also be reviewed for accuracy to meet current operational needs.

We are establishing a national flight data center to provide the central flight information service. It is expected that this center will be operational early in 1962 and will be able, at that time, to provide daily dissemination of aeronautical data to all producers and users.

Airspace restrictions

Fourth, I believe what we are doing in the field of airspace use is of interest. On May 15, 1959, when the Federal Aviation Agency assumed responsibility for special use airspace, there were 143,714 square miles of restricted areas and 5,136 square miles of prohibited areas in the United States, its territories and possessions. Now, two and one half years later, as a result of a planned program of periodic review of utilization and need, 26,036 square miles of r e s t r i c t e d and 2,865 square miles of prohibted airspace have been returned to public use with no derogation of the ability of the users to carry out their missions. In addition, in order to insure maximum utilization of special use airspace, a program of joint use was instituted. This is a program whereby such airspace, when not being used for the purpose for which designated, is released to the Federal Aviation Agency for air traffic control purposes. This program has paid dividends in more efficient use of available airspace. To date, 44,040 square miles in 68 restricted areas have been designated as joint use areas. However, in these days of an advancing state of aviation technology and weaponry of all types, increasing demands are being made for special use airspace. A prime example is the request of the Air Force for segregation of its undergraduate pilot training at seven bases in the south and southwest. This proposal is presently under consideration and could result in a considerable increase in the amount of airspace set aside for special purpose. The need to quickly bring the recently called up reserve units to a high state of combat readiness creates another demand. Each such request will be carefully considered and each decision will be made in the best interest of the nation.

The noise problem

Another problem confronting us is noise around major terminals. The noise problem has assumed major importance to both the FAA and the pilot in recent years. We are highly sensitive to it and are exploring every possible avenue for a solution. Some of these, such as the anti-noise rules for the Los Angeles and Idlewild Airports are familiar to you. Along certain lines, we are making progress. For example, we are providing guidance to the FHA in the development of noise criteria for the issuance of FHA loans for residential development in the vicinity of airports. Similar guidance will be given to municipal governments in the development of appropriate zoning ordinances applying to airport vicinities. We are particularly concerned with the proper usage of land around airports. We strongly believe that proper zoning will provide considerable relief in this problem area.

Congressional l i a i s o n concerning noise complaints received by members of Congress or congressional committees is a continuing part of our overall program.

Investigation of sonic boom effect through a joint effort of FAA/NASA/DOD is also under way. In addition, we have a contract with the Polysonics Company to develop noise contours of 16 types of aircraft. These contours will be useful in determining noise sensitive areas at airports throughout the country. We are also performing liaison with aircraft designers and manufacturers regarding the decrease of noise at its source.

In these, and all other activities in this area, we are constantly aware that there is a fine line that must be drawn between the desire to reduce the effect of noise, and the derogating effect such measures could have on the safety of air operation.

Separation of jets and props

A major effort is also under way to develop procedures for the improved handling of high performance civil turbojet aircraft in the terminal areas. Terminal area approach control is currently developed around close-in, low altitude approach fixes, with high performance jet aircraft generally receiving the same type approach pattern as propeller-driven aircraft. This concept evolved from the Indianapolis Technical Development Center simulation studies completed in May, 1958. Based on our experience in the actual control of civil turbojet aircraft, FAA recently undertook a program to determine the feasibility of eliminating low altitude holding for these aircraft. Simulation studies conducted at our R & D NAFEC facility in Atlantic City indicate that considerable advantage can be obtained by segregating civil turbojet holding and approach patterns from those of conventional aircraft. This will require development of holding patterns and approach fixes at altitudes and distances considerably in excess of those presently used.

In conjunction with the results of the NAFEC simulation conclusions, live tests of this concept are planned for the San Francisco, Denver, and Atlanta terminal areas. These tests are expected to begin on November 15, 1961. In the the event the live tests confirm the NAFEC simulation conclusions, we intend to adopt a policy of segregating civil turbojet holding and approach patterns from those of conventional aircraft at those locations where the air traffic control system capability will permit. It is our understanding that this concept is compatible with the project beacon recommendations.

Pilot reports on ATC

There is one last item I would like to cover, and that is a project under way for the purpose of learning directly from pilots problems they encounter in the air traffic control system. This program is designed to provide the pilot an easy and convenient means of reporting valid and specific ATC problems he has personally experienced. This is how it will work. On or before November 1, the FAA will distribute a post card type questionnaire to air carrier operations offices, military base operating offices, FAA flight service stations, and aircraft sales and service offices throughout the country. The cards are simple in design, require no postage or signature, and will require very little effort on the pilot's part to fill it out.

The problems reported could include such items as excessive delays, unusual procedures, complicated clearances, or other similar occurrences. The purpose of this program is to identify problem areas in order that corrective action can be taken. Its success is dependent on your cooperation. We, therefore, urge that you obtain these cards from your operations offices, and fill out the questionnaire and mail it to us whenever you encounter a problem in the air traffic control system.

The post card project is an attempt to reach you—the pilot—directly. In closing, let me remind you that our doors and our facilities are always open to you, and our people will always read and answer your letters—whether they reflect complaints or praise.

SAC BRIEFS CIVIL PILOTS ON ITS ACTIVITIES

By CARL ECK
ALPA Engineering Department

Lt. Colonel C. L. Balch, from the flight Operations Branch of Headquarters Strategic Air Command, Offutt Air Force Base in Omaha, Nebraska, gave a briefing to pilots in the Chicago area and people in aviation on July 24, 1961. Because of the importance of this briefing and our desire to bring it to the attention of air line pilots, we are publishing the report made by Mr. Carl Eck of ALPA's Engineering Department who attended this meeting.

COLONEL BALCH began his briefing on the Strategic Air Command's operations with a description of SAC's newest program to develop missiles. The SM-65 "Atlas" has a good record for accuracy and performance. The SM-68 "Titan," which is fired from a hole in the ground, has a good growth potential. The GAM-72a, the "Quail" is a 13 ft. long missile used as a decoy to simulate a B-52 on radar and to give a false warning to the enemy of where a strike might occur. The GAM-77, the "Hound Dog" has its own jet engine which can be used as an auxiliary power plant during takeoffs of the B-52 on which it is carried. When it is fired into enemy territory, it is controlled by electronic means. The "Sky Bolt" is the newest missile being developed and is expected to be equivalent to the "Polaris" now in use by the Navy.

In spite of all the development programs of missiles, SAC is convinced that for adequate retaliation ability, it is necessary to keep a high level of strength with manned bombers; therefore,

Boeing Company Photo

they have concentrated on the development of manned bombers and have brought their training to a high degree of proficiency. SAC now believes it can deliver bombs with great accuracy to any spot it chooses. Its accident rate has now been reduced to a figure in 1960 of two per 100,000 hours of operation.

Alert conditions

SAC is coordinated with the Ballistic Missile Early Warning System (BMEWS) which is designed to give warning of an attack by ballistic missiles. The "Midas" satellite will be used to detect the firing of missiles and gives information of any missile firing from outer space.

The takeoff intervals for manned bombers have now been reduced to ten to fifteen seconds. At present SAC keeps half of its active forces on alert condition at all times and it can get off the ground within BMEWS warning time. SAC crew complements now averages 1.6 crews to an airplane. It expects to raise this to 2.0 crews per airplane when it is up to full potential of 50 per cent of the force on constant alert.

SAC also has an airborne alert training program which consists of B-52s airborne at all times and fueled by KC-135s. The airborne alert is ready to attack an enemy over the North Pole. However, positive control procedures prevent an attack from occurring by accident. No bomber goes past a certain position line until the "go" signal is given by the President of the United States or his designated alternate under the most strictly controlled conditions.

Communication system

A portion of the SAC communication system is a primary alert system which is headquartered at one ground command post and supplemented by three other command posts which could take over in event of destruction of any of the other command posts. There is also an airborne command station that is continuously in flight as a protection against the unlikely possibility of the four ground command posts being destroyed almost simultaneously. There is a SAC general in the air at all times and every general in the SAC command serves aloft.

Pilot training

All aspects of pilot training are covered in the SAC training program. The main effort of the training program is to provide emphasis on needed training areas plus an incentive program composed of a point system which is used in calculating promotion eligibility. In effect the point system determines crew ratings.

Among the operational training requirements are navigational, refueling, and bombing. Most celestial training and operations are conducted VFR-on-top without positive clearance from ATC.

Radar navigation is conducted in the "Oil Burner" IFR low level program and the "Fair Ball" VFR operational program. Normally these operations are conducted at a maximum airspeed of 280 knots. The "Oil Burner" program has a high priority and in 1961 conducted 5,688 operations. SAC does not expect this number to change significantly because low level operations burn large quantities of fuel and the fuel allowance limit will control the number of operations.

The refueling operations and training are conducted in certain selected areas designated for this purpose. The KC-97s operate in the 10 to 20,000 altitude range while the KC-135s refuel flights at 20,000 feet and above. Most refueling operations are conducted VFR-on-top. However, at times there may be some altitude blocked off because of possible IFR operations. There have been 32,750 SAC refuelings in the first quarter of 1961.

There are numerous radar bomb scoring sites throughout the United States that are located on specific "Oil Burner," "Fair Ball" and other SAC routes. There have been 21,704 bombing scorings recorded the first quarter of 1961.

Air traffic control

About 75 per cent of all SAC operations are VFR-on-top. SAC procedures for refueling navigation, and bomb practice precludes sticking to the airways structure. SAC would like to put itself under FAA air route traffic control for positive separation but FAA's capability does not meet SAC's demands at present. It obtains altitude reservations for missions of more than one aircraft when the required separation is less than that provided by FAA. With the altitude reservation, SAC assumes responsibility for its own separation (MARSA). Its objective is not to obstruct civil air routes. Central Altitude Reservation Facility (CARF) shows that in 1960, they arranged fo 10,250 altitude reservations for 57,28 aircraft.

Operational missions

The SAC North American Defens requires tanker task forces to operat on 2 to 6 hour missions to refuel othe operating aircraft. Some of these operations, requiring refueling, are part o missions involving low level penetration, bomb scoring, and refueling.

The B-58s are super-sonic for about 300 to 400 miles at a time because of the terrifically high fuel consumption at super-sonic speeds. Ordinarily they operate above civil traffic and keep speed to Mach .92 at 31,000 feet and reach Mach 2 above 50,000 feet. At present SAC has a program of civilian education concerning the sonic boom. It believes also that operations above 40,000 feet exceeding the speed of sound are not yet a safety problem because of the few operations above that altitude. B-58s presently operate mainly VFR-on-top.

Military/Civil comparisons

SAC flies about 20 per cent of all USAF flights; its daily aircraf missions in the air average 741. A comparison of air space utilization by military, air carrier, and general aviation is as follows:

	Hours Flown (per cent)	Number of Aircraft (per cent)
Military	38.9	33.97
Air Carrier	10.2	1.7
General Aviation	50.9	64.4

SAC recommendations

The SAC representative suggested that radar positive separation seems to provide the most positive, immediate means for improving ATC in the forseeable future. This can be accomplished by providing FAA with a portion of the SAGE air defense system capability. This concept has been thoroughly tested for the past several years.

Colonel Balch's presentation was an interesting viewpoint on the military flying being conducted in North American airspace and should provide air line pilots with a better understanding of the problems involved which we should know in our attempts to find equitable solutions. This type of briefing is excellent and they deserve to be brought to the attention of ALPA members.

With the Flight Attendants

ALPA S&S Division marks first anniversary in Nov.

November 1961 marked the first anniversary of the Steward and Stewardess Division of ALPA. Moving in an area where there are many long established unions desiring to represent the flight attendants, the S & S Division on November 1961, had aquired the representation rights for 3,580 flight attendants on 18 air lines which is 35 per cent of the approximately 10,000 flight attendants on 34 organized air lines.

At present the officers of the Division are in acting capacity because the newly formed Division is still in an organizational stage. Permanent officers of the Division will be elected at the May 29, 1962, ALPA Board of Directors meeting.

Ask flight attendants for data on hazards, incidents

The ALPA S & S Division is endeavoring to establish both a realistic cabin attendant complement and a training-requirements program through FAA regulations. To do this ALPA's Engineering and Air Safety Department is in the process of obtaining up-to-date information from cabin attendants on incidents such as: emergencies of any type, evacuation, in-flight hazard, in-flight accident, use of alcohol, fire on the ground and in the air, and other problems.

"Road Show" explains new ALPA-UAL pact to members

To explain the terms of the new agreement between the flight attendantants of United Air Lines and the company, UAL and the Association agreed to send a team of people who were present during the negotiations around to each of the thirteen bases where stewards and stewardesses are domiciled.

The purpose of such a tour—called the "Road Show"—is to have both parties to the negotiations explain their interpretations of the language of the agreement signed October 30, 1961, in Chicago. (See *ALPA News Bulletin*, 11-6-61). Thus, the traveling team brought first hand information to the flight attendants with specific questions, with interpretations by the Association and the Company.

The "Road Tour" began on November 1, 1961, in Minneapolis. It then went through the Eastern states, worked westward and arrived in Honolulu, November 22, 1961.

Jet travel through time zones can upset travelers

Have you ever wondered why traveling on jets seems to make some passengers groggy and grouchy—yourself included? The cause seems to be the rapid progression through time zones according to a recent story in the *New York Times* which reported a conference on this problem held by the New York Academy of Sciences.

The body of a traveler may still be operating on his "home town time"—say midday—but physically he may be at a place where it is midnight or very early in the morning to the natives of that place. For reasons that are not well understood, a person can adapt to drastic change in environment; for example in the Antarctic men can walk out of a 75 degree warm hut into 60-below weather without adverse affect. But temporal changes seem to upset people.

The evidence seems to point to the fact that certain physiological processes follow cycles, the over-all being 24 hours long and synchronized to the time zone in which the carrier of this biological clockworks lives. Another cycle is the fact that the blood sugar in the body hits a low point for most people late in the afternoon, a condition known technically as hypoglcemia or the "5 o'clock psychological shadow" and is accompanied by a drop in alertness or a mild depression. Thus, a traveler who is at 5 p.m. hometown time and lands at his destination at midnight may be ill at ease.

Though the problem is under study, particularly by the Air Force, there is no known way for the traveler to reset his "biological clock." The traveler now has but two choices: arrive a day or so early at his destination in order to get acclimated; or, go into training a few days prior to his trip by living on the time schedule of his proposed destination.

"I'll sure be glad when we find this guy's suitcase!"

pears entirely feasible to eliminate all *compulsory* position reports and instead have the controllers interrogate pilots for position information as required. It is indicated to us that a result of approximately 50 per cent decrease in communications workload would result. And while this may cause a transition of some workload in computing aircraft movement from the cockpit to the ground facilities, we believe this to be a proper step. Implementation of this procedure on a trial basis with air carrier aircraft could be commenced immediately and we suggest that it be done in an area such as the air routes between New York and Washington, or New York and Chicago so that its value can be thoroughly tested in the most saturated airspace in the world.

Descent procedures compatible with aircraft performance.

The commencing of descent of an en route aircraft into the terminal area is frequently dictated by air traffic control procedures. Many of the high density area controllers follow a step down technique which required the aircraft to leave optimum cruising altitude earlier than is desirable. The judicious application of radar control techniques can allow the civil turbojet aircraft to remain at optimum altitudes until practically over the airport of destination, certainly much closer to destination. Application of these techniques is a must to provide the best air traffic control with existing facilities.

Descent to be completed within specified distances.

It is not infrequent that a pilot receives a clearance to cross the next fix at a specified altitude. It is also not infrequent that such a clearance if followed would exceed the performance capability of the airplane. In training controllers must be made aware of certain basic information so that the judgment behind clearances issued will be predicated on some knowledge as to what the pilot must comply with in order to meet the requirements of the clearance.

Holding patterns.

Holding patterns have been a part of the ATC system since its inception. *There has never been a well defined procedure for entering holding patterns.* This has resulted in many variations in techniques used by pilots. Consequently, the people operating the ATC system can never be quite sure which technique will be used. Immediate standardization should be undertaken. Re-evaluation of holding pattern airspace in consideration of the higher performance aircraft should be made.

At any rate, controllers and pilots alike must be provided with information which clearly reflects the size and type of holding pattern and the technique which will be followed for the aircraft entering this pattern. Holding patterns should be established over VOR facilities. Radial intersections should be used for holding only when the pilot has been established on the radial of the intersection a sufficien length of time to have corrected fo windage, etc. Standardization as notec here has been recommended by the FAA and with a slight revision should answer this need—that is, if the entry procedures are written so that they can be easily interpreted. (That ATM 50 was a nightmare to interpret!)

Approach control feeder fixes.

These holding patterns, commonly referred to as offset fixes, must be predicated upon VOR facilities. Preferably they should be established over a VOR station, not on intersecting radials. These fixes should be ideally located at mid-point either side of the airport proper for maximum efficiency and ease of use. Advantage should be taken of previous CAA Technical Development Center reports on this subject. The equipment for these facilities should be procured and sited for their specific requirement. In the past, it has been popular to utilize existing en route aids for feeder fixes. This does not allow the maximum efficiency, and, therefore, en route aids should be allocated for feeder fix purposes only if coincidentally the en route aid is located at a proper feeder fix site.

Clearance to leave feeder fix.

These clearances come at a time when both pilot and controller are beginning to operate at near maximum capacity. This is during the time when aircraft are being placed in closer proximity by the ATC stystem and, therefore, these clearances must be clear, concise and easily understood. This is an area which we believe is not adequately covered by initial training, proficiency check or recurrent training of controller personnel, and where a computer call out would be beneficial.

Radar Fixes.

The use of radar fixes in approach procedures should be discontinued, inasmuch as it destroys the basic premise that a pilot must know through his own navigational aids the location of his aircraft in relationship to the airport at all times.

Terminal area segregation.

We still have high speed turbine aircraft operating in and through congested areas without using the control system. "Century series" jet fighters fresh out of the factory are test flown and debugged in high density areas. This is not a safe practice and should, through rule making, be prevented.

Trans-Texas Airways 14th Annversary celebration at the Shamrock-Hilton, Houston, Texas, became the occasion for awarding 10 Year Pins to six pilots from chief pilot T. K. Lee. (L. to R.) Captains: J. C. Taylor, E. J. Bond, L. R. Zollas, T. K. Lee, W. R. Elliott, H. E. MacBride, and F. H. Smolley.

However, all problems are not created by the fast-moving machines. There is still a considerable problem presented by the very large volume of slower planes and for their welfare, as well as for ours, we feel that in the metropolitan areas a full traffic control system must be applied. These areas should be protected from uncontrolled penetration by any other aircraft. The airspace from the surface up to maybe 3,000 feet should be reserved for aircraft not equipped, or not desiring to use the control system. This would apply from the outer edge of the designated terminal area to within possibly 15 to 20 miles of the metropolitan airport or airports involved. From that point in, well-defined corridors chosen so as to be easily flown visually and not interfered with by the controlled traffic would be desgnated for use by the uncontrolled aircraft going to or from the small airports. The pilots of both classes of traffic could breathe a sigh of relief. Ninety-nine per cent of the exposure of the air line passenger to collision in the terminal areas would be eliminated. This is a goal worthy of great effort.

4. Control personnel

And finally, a few words about the control personnel, pilots, and the system. (I get a little carried away when I discuss this, so please bear with me!) As I see it, the Traffic Control System is basically the responsibility of the Federal Aviation Agency. The System is not infallible as we all know. It is only as safe and efficient as the personnel, both ground and air, allow it to be. It is only as safe and efficient as the tools we have to work with allow it to be. It is only as safe and efficient as the procedures we use allow it to be. Unfortunately, and practically speaking, the responsibility for the success of the system has been transferred to the pilots and controllers, only taking into account the procedures we use.

5. Procedures

As I said when I began—we just cannot get there from here without including all the factors. True, certain procedures can be refined, as noted earlier. But without more efficient tools, we sacrifice safety by minimizing our already too-thin margins because we are exceeding the limitations of both the tools and personnel involved. I have been criticized for not giving pilots their due credit in the performance of their jobs.

334 to 417 pounds of water plus all the tanks and associated plumbing to install the system or about 700 to 800 pounds less payload per aircraft. If this system is demanded by the pilots, and I sincerely hope it will be, some kind of cooling gas may be substituted for the water that will weigh less, do a more efficient job and be more easily contained.

We have discussed pre-meditated emergency landings. How about the sudden crash on take-off, such as the recent Electra accident at Chicago-O'Hare? The inerting system control tied into the crash bar could still be used and could be very valuable but how about the aircraft not equipped with this system that suddenly burst into flame on impact. If these crashes are off the airport, the crash trucks will be late in arriving at the scene and so, for emergencies such as this, the Air Force is carrying out an extensive program using the Kaman H-43B helicopter. This is turbine operated and so needs no warm up. The twin motors are so constructed that by hovering over the fire the downwash beats out the intense heat and flame and provides life-giving oxygen to the trapped occupants of the crashed aircraft. Used in conjunction with the airport crash trucks, these helicopters have already saved many lives, the last two being three weeks ago at Wilmington, North Carolina. There is one fault with this type of protection, that is our age-old factor of cost. Who can pay and how much? The cost of maintaining a full crew of pilots and rescue assistants on a 24-hour basis would be prohibitive for the average airport manager who even now considers a $50,000 crash truck more than he can afford.

Since there have been so many incidents involving hydraulic failures of late, would it be practical for the FAA to establish ten emergency landing fields in this country to be used for such emergencies? The fields selected should be present use commercial airports with clear level surrounding terrain—12,000 to 14,000 foot runways and with no obstacles or ditches on either side. The FAA should then equip these airports with full ground crash rescue equipment over and above NFPA specifications: helicopter equipment, heavy moving equipment for rescue, plus trained first aid and ambulance teams. In short, it should have everything necessary to take care of any emergency.

The Rescue and Fire Committee believes that using the emergency items discussed together with those we presently have available, we can increase survivability 100 per cent and give our passengers and ourselves a sporting chance. That's all any of us can ask for.

Form Fitting

NEW LIGHTWEIGHT seat sculptured of plastic foam scientifically hugs human form and made possible 25 per cent cut in jet coach fares, December 1, on Continental Air Lines. According to the release Cynthia Lynn "models modular mass travel seat in production . . ."

It has been interpreted as a sign of weakness by some when I speak of the limitations of the aircraft, the limitations of our instrumentation, the limitations of radar, the limitation of our navaids, the limitations of controllers operating in their present environment, and the limitations of the individual pilot when asked to perform without incident in the face of all these factors under minimal marginal weather conditions into airports with short runways, sub-standard lighting, without accountability for all the factors which really affect aircraft performance.

You can't get 4 lbs. into or out of a 3 lb. bag—that is, unless you want a blowout! I don't! The system as we know it is capable of absorbing the movement of just so many aircraft recognizing all these limtations. ALPA has expanded its ATC participation on the Regional Airspace and ATC Committees. ALPA is ready to cooperate to the maximum of its capability to this end. There is a need for improved procedues. But let's devise them to work within our capabilities.

Fringe benefits

When Capt. F. Tosto landed in Albany, D. Tanner presented him with frozen Libby pies as part of a publicity gag. We skipped the explanation here because it was a rather involved story built around a "Pie in the sky" theme.

Veteran PAA captain dies

Capt. Harold A. Lamm, a Pan American World Airways' pilot for 20 years, died suddenly, November 3. He suffered a heart attack at his home, 7707 Ponce de Leon Road, Miami.

Capt. Lamm had piloted Clippers on nearly all of the airline's Latin American routes and for four years piloted transatlantic flights with Pan Am's Overseas Division.

During his career he compiled nearly 20,000 flying hours and only last month set a flight record, flying a DC-7B from Kingston to Montego Bay, Jamaica, in 19 minutes.

Capt. Lamm joined Pan Am in Miami as a pilot in November, 1941. He became a captain two years later and was assigned to Rio de Janeiro. After flying in Brazil for four years, Capt. Lamm was transferred to the Overseas Division, where he piloted transatlantic Clippers for three years. He returned to Miami, headquarters for the Latin American Division, nearly 11 years ago.

Born in Woodridge, Mo., March 18, 1917, Capt. Lamm attended William Jewell College, Liberty, Mo. Surviving are his widow, Mrs. Dorothy T. Lamm and three sons and a daughter. One son, Harold A., 18 attends the U. S. Naval Academy, Annapolis. The others are William C., 17, Dorothy L., 11, and Robert J., 7.

"Operation Duckling" --- a yule season story

We thought a Christmas-type story would be appropriate for this, the December 1961, issue of *The Air Line Pilot*. "Operation Duckling" which took place in December 1960 is such a story and merits retelling in these pages. It's about a project to give a surplus military aircraft to a children's playground with an ALPA member playing a major role.

In theory it sounds easy — getting a free surplus military aircraft and placing it in a children's playground, with plenty of volunteers ready to help. Eastern Air Line pilot Jim Matthews thought so too but it took three years to accomplish the project.

Three years ago ALPA member Jim Matthews was asked by the Superintendent of Recreation for St. Petersburg, Florida, to check into the recreational possibilities of planes for playgrounds. He found that the armed forces could give away surplus aircraft if no cost to the government was involved.

But the whole idea was just odd-ball enough to make a perfect subject to bounce for three years from office to office in the Pentagon. Jim did plenty of bouncing on his own — between the Pentagon and Miami. And there were trips to the naval air facility in Arizona to inspect aircraft there and another trip to the Air Force "graveyard" in Tuscon.

Finally Jim and Miami's mayor wrote a letter to the Deputy Chief of Staff, Naval Operations for Air. They got action. The Navy had a P2V Neptune patrol bomber at a base in Sanford, Florida. Three navy pilots volunteered to fly it to Miami.

Possibly the biggest headache of the operation was getting the plane from the airport to Grapeland Park in Miami — a project which required help from the air line, EAL personnel, policemen, utility workers and other specialized talent.

First, the wings were taken off the craft. EAL supplied a tow tractor and driver. Then in the late hours of the night last December the craft began its last trip. The Neptune's tail would not go under an overpass on LeJuene Road so a construction company provided two huge cranes to lift the plane over it. Nearly one hundred policemen were around to smooth the way plus utility workers who had to remove wires on the route.

The plane got to the playground with only a few bruises. EAL personnel replaced the wings, gave it a paint job and a P2V became "Duckling No. 1." The success of good citizen Jim Mathews' project has inspired similar projects. Another "Duckling" was painted and put into shape by the EAL Boat Club for the kids of Orlando and children in other cities may have the fun of playing with a real airplane.

DUCKLINGS No. 1, an ex-Navy P2V Neptune patrol bomber, which became the main attraction of a children's playground, Grapeland Park in Miami. The chief "spark plug" of the project was ALPA member Jimmy Matthews of EAL who is standing to the left of Rear Admiral R. Y. McElroy representing the Navy as the plane's donor. In the group are EAL personnel who helped bring the plane to the playground and who rendered the aircraft safe for children.

Courtesy The Great Silver Fleet News

MACH 3 TRANSPORT BY 1970

Development of a commercial transport plane to fly three times the speed of sound (Mach 3) is feasible, and could be done by 1970-1971. The industry estimates there is a world market for upwards of 200 such planes.

This is the major conclusion of a booklet, "Commercial Supersonic Transport Aircraft Report," issued today by the Federal Aviation Agency, the Department of Defense and the National Aeronautics and Space Administration. The 50-page report was signed by N. E. Halaby, Administrator of the FAA, James E. Webb, Administrator of the NASA, and Robert S. McNamara, Secretary of Defense. A Task Group of the three agencies prepared the report as a joint review of information gathered from industry and government sources. It is available, in limited quantity, from the FAA.

The report noted that the B-58 and the B-70 bomber programs and "broad earlier research and experience of supersonic flight from which they evolved provide the United States with a unique capability for developing a supersonic transport." Private industry, the report adds, cannot at present finance the job alone but will need Government assistance. Some recoupment of Government funds from sales is practical. The Government can use existing technical and administrative capabilities of the three agencies under the over-all leadership of the FAA for the study phase of the program.

The principal reasons for developing the fast transport are given in the report: The maintenance of the present leadership and prestige of the United States in aviation matters; and benefits in its effect on general economic progress.

The Secretary and the two Administrators agreed that certain basic principles should be kept in mind in the project. They are that the program is one of Government assistance to industry; that competition should be used to maximum advantage; that direct Government financial assistance should be provided only to the point from which industry can carry on alone; that the civil air carriers should participate actively; and that the maximum feasible recovery of direct Government expenditures should be sought.

Research on various parts of the problem already is under way by each of the agencies. The program for research in fiscal 1962 deals with the technical areas requiring intensified research. The FAA has asked Congress for $12 million for this work in fiscal 1962, noting that additional funds will be required next year. NASA plans to spend about $8½ million for internal research this year.

Manufacturers estimated their planes would have a range of about 3,500 nautical miles; weigh approximately 400,000 pounds; have a wing span of 100 feet and fuselage length of 200 feet, carry from 100 to 150 passengers; and cruise at around 2,000 miles per hour at 70,000 feet altitude.

Aviation industry representatives believe that a new engine for the plane must be developed, the report states. The greatest power need will be at altitudes over 40,000 feet where the plane accelerates from subsonic into the supersonic speeds. Present engines are not considered suitable for the supersonic transport, and there was virtually unanimous preference by the manufacturers of some form of turbofan engine.

Wing design will require considerable research to be efficient at both low and high speeds. One idea is for a wing that can be mechanically swept back to a "delta" shape when the plane enters its high speed range. Fuselage and wing structural materials that will withstand the special thermal conditions of Mach 3 flight must also be researched.

The "primary operational problem" is the sonic boom, the report says. Tests are being readied by NASA to determine how much this unpleasant noise is attenuated at high altitudes. At subsonic speeds, the new plane would be no noisier than present-day jets, the report indicates.

Manufacturers estimated production models of the transport should cost between $12.6 and $20 million each. There are widely varying estimates, however, of the possible market in the Free World at the time when the new jets would be available. The estimates ranged from 75 to 450 aircraft for the 1968-1975 period.

In discussing the tri-agency cooperative effort, Administrator Halaby said: "Progress with safety in aviation is our business."

"I feel it's only fair to warn you that I may be leaving. I'm sending off an entry to the TCA 'Fly Anywhere' contest in this bottle!"
Mathias
TCA Interliner

ATA'S VIEWS *continued*

airport high-density terminal areas, and implement such facilities as soon thereafter as possible.

9. IFR for helicopters

With the continuing and rapid expansion of helicopter operations by scheduled airlines, it become obvious that provisions must be made for the operation of such flights in an instrument flight rule environment. The FAA and the industry must work together to develop the helicopter IFR capability in terms of both navigation systems and air traffic control procedures.

10. ATC automation

Much has been said about the need for automatic Air/Ground/Air communications in air traffic control. We believe that the ever-increasing volume of air traffic with its related communications will inevitably require that automatic communications become an integral part of an automated air traffic control system. In our view, one of the principal deterrents to the development of an automatic communications system is the lack of a clear and concise understanding of the relationship to automatic data processing. We urge that FAA, in conjunction with the airspace users, proceed immediately to develop a set of operational requirements for an automatic Air/Ground/Air communications system coupled to automatic ATC data processors.

11. Vertical separation

Today, we are limited to the use of 2,000-ft. vertical separation above flight level 290. Through improved airborne equipment and related techniques, the FAA should develop appropriate rules whereby 1,000-ft. separation can be applied above flight level 290.

I have touched on but a few of the major air traffic control requirements which the airlines feel must be dealt with in order to improve the air traffic control system. We recognize that some of these ATC requirements are difficult to attain in terms of time, effort and money; however, they must be accomplished if aviation is to expand to its full potential as a primary means of mass transportation.

To repeat again—we, in the airlines, are willing and ready to take that extra step forward to work with any agency, group or individual toward the goal of obtaining, as soon as possible, a safer and more efficient air traffic control system. I'm sure that the others at this forum will echo this same spirit of cooperation. Now, let's roll up our sleeves and get this job done.

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From the radio networks

Togetherness in the cockpit

By PAUL HARVEY
ABC Commentator

IN airplanes, too, "it's what's up front that counts."

Recently, flying Salt Lake to Burley, Idaho, on West Coast Airlines, the newshawk's ears were alerted by the stewardess' announcement: "Our pilot is Captain Solomon; our First Officer is Captain Solomon."

Thus I was introduced to one of several father-and-son teams in the Air Line Pilots Association.

I suppose every man dreams of someday being in business with his son. Most of us awaken from that dream to discover that our preoccupation with our occupation has deflected Junior's interest elsewhere. Or perhaps Junior escapes competing with dad's headstart by making a fresh start in another field.

George Solomon was doing chores for free rides in barnstorming airplanes when he was 16. By the time he was 19, he'd saved enough money to put himself through flying school in Portland, Oregon. After his own apprenticeship, barnstorming and instructing, George was ready for the aviation boom of the late thirties.

George, Junior, was 12 when George, Senior, got his first job as an airline copilot. It was 1940.

Junior, at 12, was ready to solo but managed to throttle his impatience until he was "legal-age", 16. In a Piper Cub (J-3) Junior accumulated the time necessary to his commercial rating.

"Mother and I spent many anxious moments during Junior's first cross-country flights," says Captain George. But at 18 Junior had a commercial license, an instrument rating, and, at 19, made his first flight as *copilot with Dad!*

Stewardess Shirley Rogers, currently third member of the team, speaks with near reverence for the pair. Many, she says, "mistake them for brothers."

George is 51 now, Captain of the F-27 flying Salt Lake to Seattle. George, Junior, is a rated Captain, competent to fly as an airliner Captain, but elects instead to fly copilot with his Dad.

By choice they share the same cockpit.

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Off duty, they hunt and fish and water ski together. Fortunately, their wives enjoy a similar comaraderie.

And now young George, 30, has a son who is six, and the lad, already a model-builder, can hardly wait to become the third generation of Solomons to fly the sky together.

I've sideslipped past the part that impressed me most—the attitude of these men toward one another. They are a handsome pair. George looks the way airline Captains should look and seldom do.

And the way each praises the other with professional pride as well as personal esteem—you could tell if such a relationship were even part pretense—the whole cold Northwest is warmed by their genuine mutual respect. Junior has 10,000 hours now; half of Dad's 20,000.

Flying with Eastern Airlines, though seldom together, are H. E. James, Senior and Junior—Captain Al Dreyer, Senior and Junior—F. B. Kern and his son, C. S. Kern—R. G. Minick, Senior and Junior.

Wien Alaska Airlines, Inc., employs seven men from one family. The Wien family.

When Captain Stan Stanton retired, one of TWA's ten original pilots, he left two sons flying for that airline. Bud with 15 years seniority and Jim with 17 years.

With Ellis Airlines in Alaska, the son of the president is now a Captain —Pete Ellis.

In years past, Pan American employed George Snow, Senior and Junior and Captain Al Rreyer, Senior and Al, Junior.

For Alhoa Airlines, in Hawaii, Charles Emery Tyson and his foster son, Arthur Tyson, are both copilots.

Northwest, at one time in 1959, had seven father-son teams flying. Flying was a family affair for Captain Mal Freeburg and his son, Jim; Captain Joe Ohrbeck and his son, Dick; Captain Les Smith and his son, Noel; Captain Bert Ritchie and son, Chad; Captain C. L. Wright and son, Chuck, Jr.; Captain Tom Hennessy and son, Tom, Jr.; and Captain Ed Zonne and his son, Emil.

Captains Ohrbeck and Freeburg have since retired.

Actually, there is a George Cook and son, Bill, flying with West Coast Airlines, though never in the same crew.

So Solomon and son, who both have the rating and the seniority to fly as Captains—but elect to fly together—are an extraordinary example of togetherness on the high frontier.

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- New York
- North Central
- Northeast
- Northwest
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- Pacific Northern
- Pan American - Grace
- Piedmont
- Riddle
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- West Coast
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